DANGO & DIENENTHAL

Incorporated

JET Filter

USA

The JET Filter

The New Definition of Purity for Your Medium

- Cooling Water
- River Water
- Sea Water
- Sinter and Scale Separation
- Emulsions
- Process Water
- Mussel / Mussel Larvae Separation

Our Filter Systems Protect


Plate Heat Exchangers


Spray Nozzles


Piping Systems


Mechanical Seals


Pumps


Micro Filtration

flow rate	4 gpm to 110,000 gpm
filter fineness	≥ 50 microns to 5,000 microns
operating pressure	22 to 900 psi
pressure loss with clean filter	1 to 4 psi
flange size	2“ to 120“
temperature	– 13 to + 392 °F
automatic / manual backwash	✓

Scope of Delivery

Fig. 1

voltage 230 V or 400 V	•	
voltage 110 V to 690 V	•	
Pressure Equipment Directive (PED)	•	
ASME „U“- Stamp		Δ
explosion protection		Δ
differential pressure gauging	•	
differential pressure as 4-20 mA-signal		Δ
automatic filter control	•	
self-medium backwash	•	
external medium backwash		Δ
backwash with suction pump		Δ
electric or pneumatic backwash valve	•	
signal exchange with PLC	•	
electrical cabling incl. connectors	•	
documentation	•	
certificates	•	Δ
functional test at manufacturer’s works	•	

included in the scope of delivery	•
available at extra charge	Δ

	standard design	sea water resistant design	special design
filter housing	carbon steel galvanized, carbon steel coated	GRP, steel gummed, stainless steel	PP, PE, PVC
filter elements	stainless steel	stainless steel	stainless steel

Filtration Process

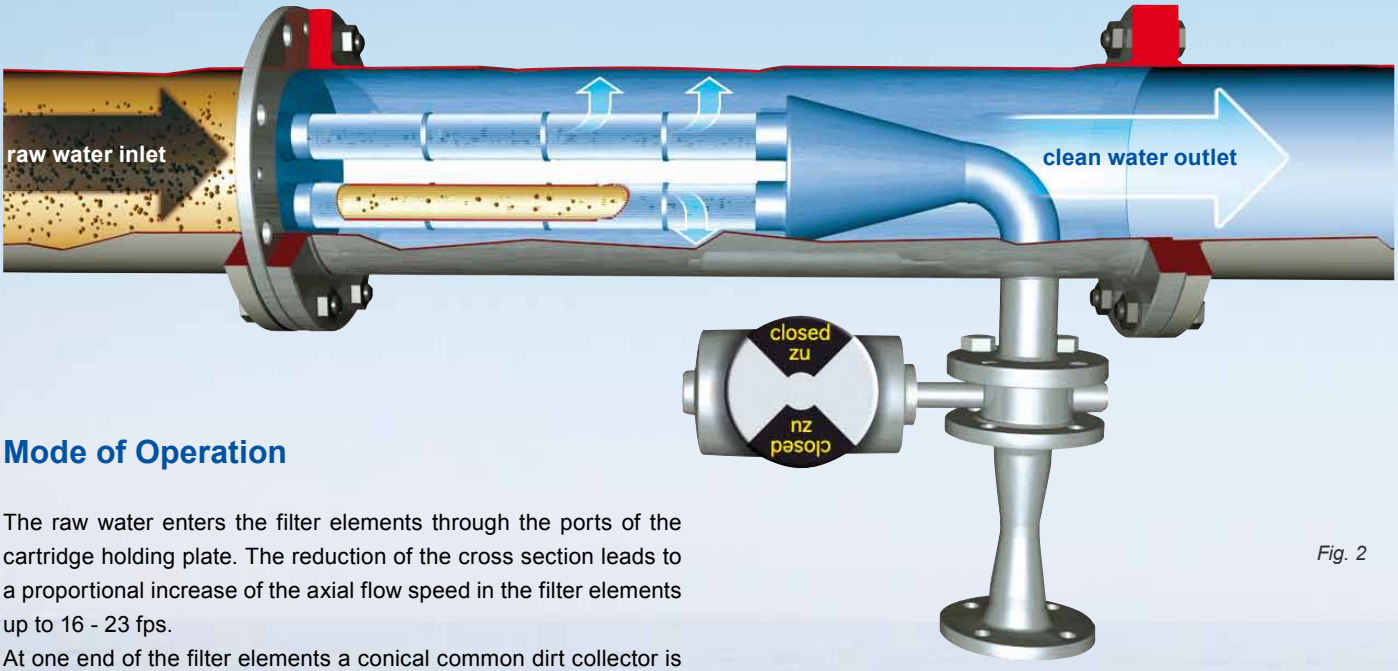

Fig. 2

Mode of Operation

The raw water enters the filter elements through the ports of the cartridge holding plate. The reduction of the cross section leads to a proportional increase of the axial flow speed in the filter elements up to 16 - 23 fps.
At one end of the filter elements a conical common dirt collector is placed.

According to the rule of Bernoulli the raw water filtration takes place in the last third of the filter elements. The raw water passes the filter elements from inside to outside. The cleaned water then passes the common collector and leaves the filter on the clean water side.

Because of the axial flow speed of 16 - 23 fps in the filter elements the dirt particles are discharged in the common collector. The backwash process is triggered off by the differential pressure (pressure difference between raw and clean water side). Additionally an adjustable time lag relay in the electric control permits the start of the backwash process.

Backwash Process

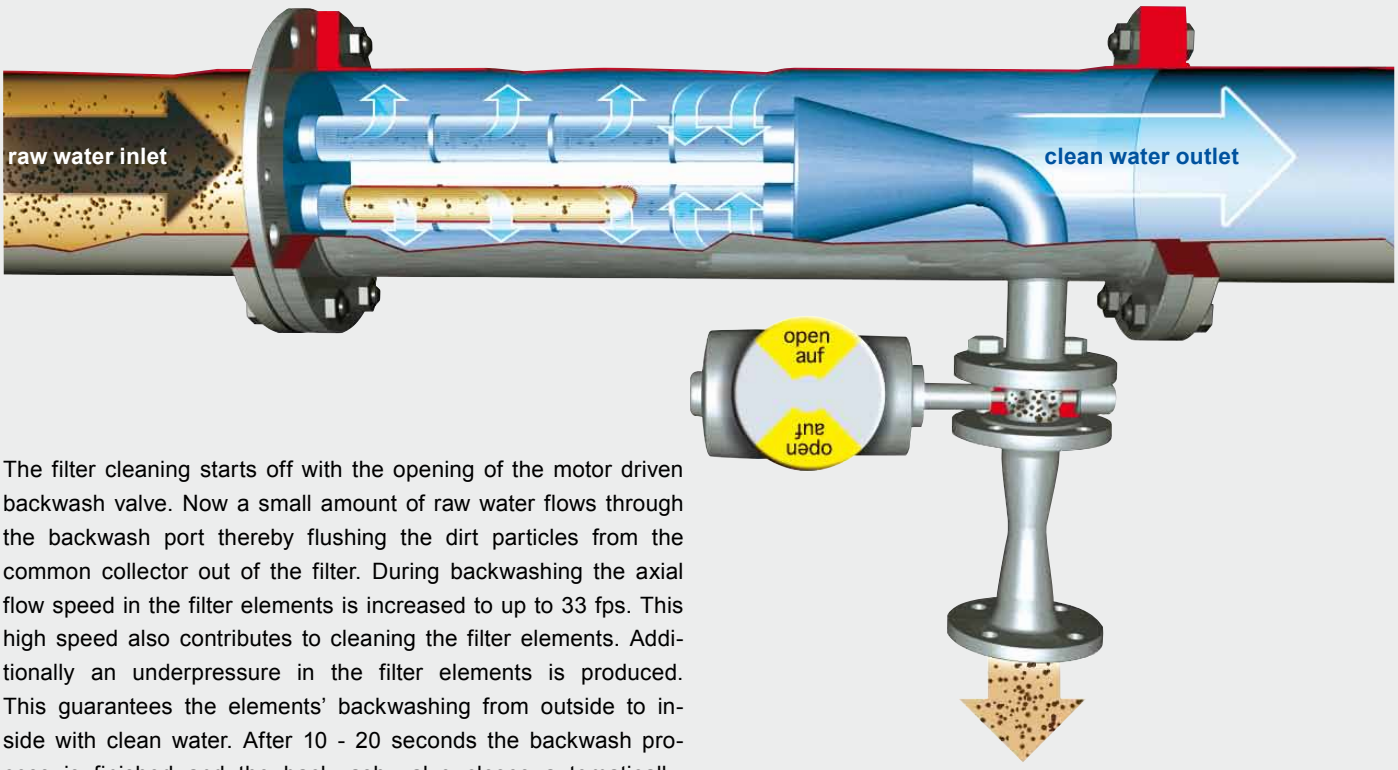

Fig. 3

The filter cleaning starts off with the opening of the motor driven backwash valve. Now a small amount of raw water flows through the backwash port thereby flushing the dirt particles from the common collector out of the filter. During backwashing the axial flow speed in the filter elements is increased to up to 33 fps. This high speed also contributes to cleaning the filter elements. Additionally an underpressure in the filter elements is produced. This guarantees the elements' backwashing from outside to inside with clean water. After 10 - 20 seconds the backwash process is finished and the backwash valve closes automatically. During backwashing the filtration process is not interrupted.

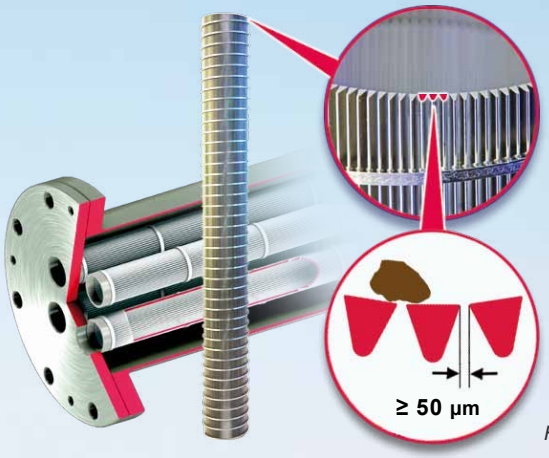

Fig. 4

Filter Elements

Stainless steel slotted tube cartridges with axial slots for optimal filter element cleaning.

Fig. 5

Electric Control

The backwash process is started off depending on time and / or differential pressure thus ensuring a fully automatic filter opera-tion. The standard control includes the following signal exchanges with the customer's control system (PLC):

- collective fault indication
- ready for operation
- filter is backwashing
- external starting of the backwash process
- external release of the backwash process

Fig. 6

Venturi Nozzle and Backwash Valve

The venturi nozzle is dimensioned according to the conditions at site for regulating the necessary backwash water amount and for avoiding pressure fluctuations in the piping system. As standard the backwash valve is equipped with an electric or a pneumatic drive.

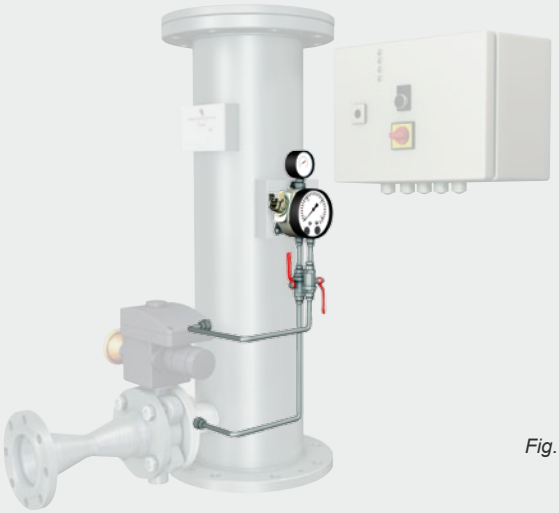

Fig. 7

Differential Pressure Gauging

Consisting of:

- optical inlet-pressure indicator
- optical indicator of the differential pressure
- 2 adjustable micro-switches
- start filter backwash
- alarm signal

DANGO & DIENENTHAL
Filtertechnik GmbH

Range of Application

Fig. 8 sea water filtration for snow making system

Fig. 9 river water filtration in chemical works

Fig. 10 cooling water filtration for CERN, Genf (European Organization for Nuclear Research)

Fig. 11 drinking and process water filtration in brewery

Process Diagram

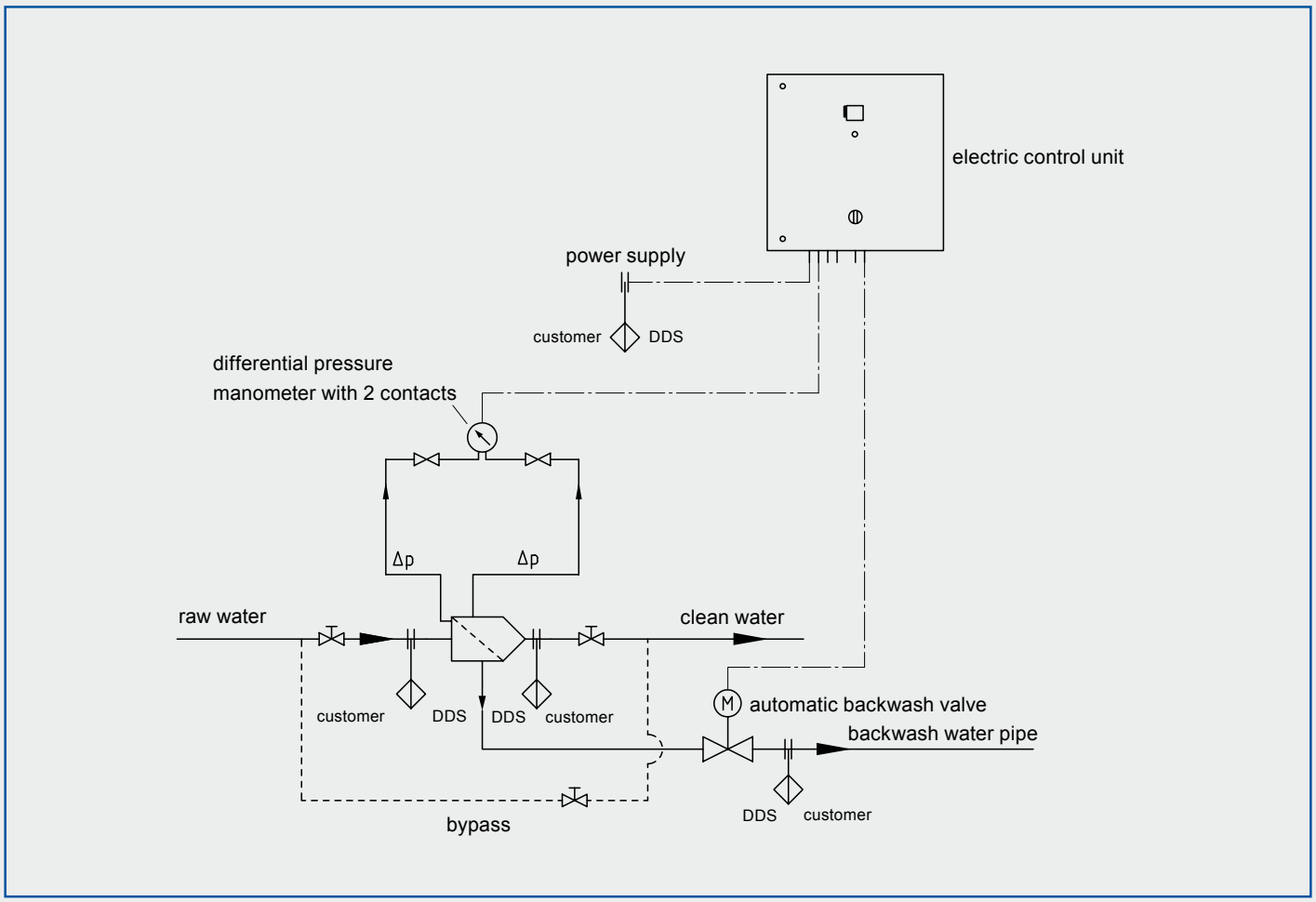

Fig. 12

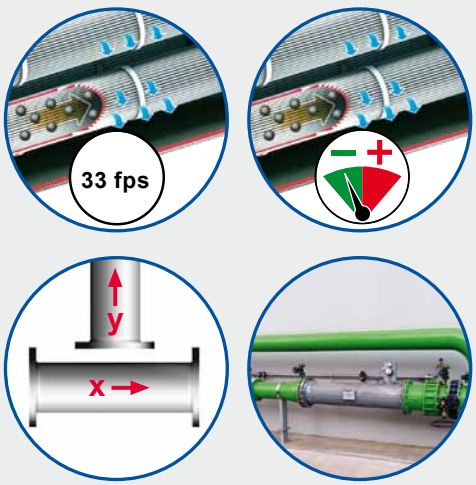

Fig. 13

Advantages

- high backwash speed (up to 33 fps)
- any mounting position (horizontally / vertically)
- simple installation (inline construction)
- low wear (no movable parts in the filter)
- low backwash water loss
- no differential pressure increase during the filtering process
- wide range of materials
- ready-made cabling
- special design possible on customer's request

DANGO & DIENENTHAL
Incorporated

P.O. Box 2870 • Alliance OH 44601
Phone 330 829 7978 • Fax 330 829 1442 • E-mail: filter@dango-dienenthal.com
www.dds-filter.com